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AUTHOR	Ellis, Brenda
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ABSTRACT

This instructional guide, one of a series developed by the Technical Education Advancement Modules (TEAM) project, is a 3-hour introduction to computers. The purpose is to develop the following competencies: (1) orientation to data processing; (2) use of data entry devices; (3) use of computer menus; and (4) entry of data with accuracy and positive feedback. The TEAM project is intended to upgrade basic technical competencies of unemployed, underemployed, and existing industrial employees. The materials in this module serve as a student outline and an instructor guide. The manual includes six sections: (1) computer hardware; (2) storage and memory capability; (3) processing cycles--processing, input, and output; (4) operating system software and hardware; (5) system start-up; and (6) data entry exercise. (NLA)

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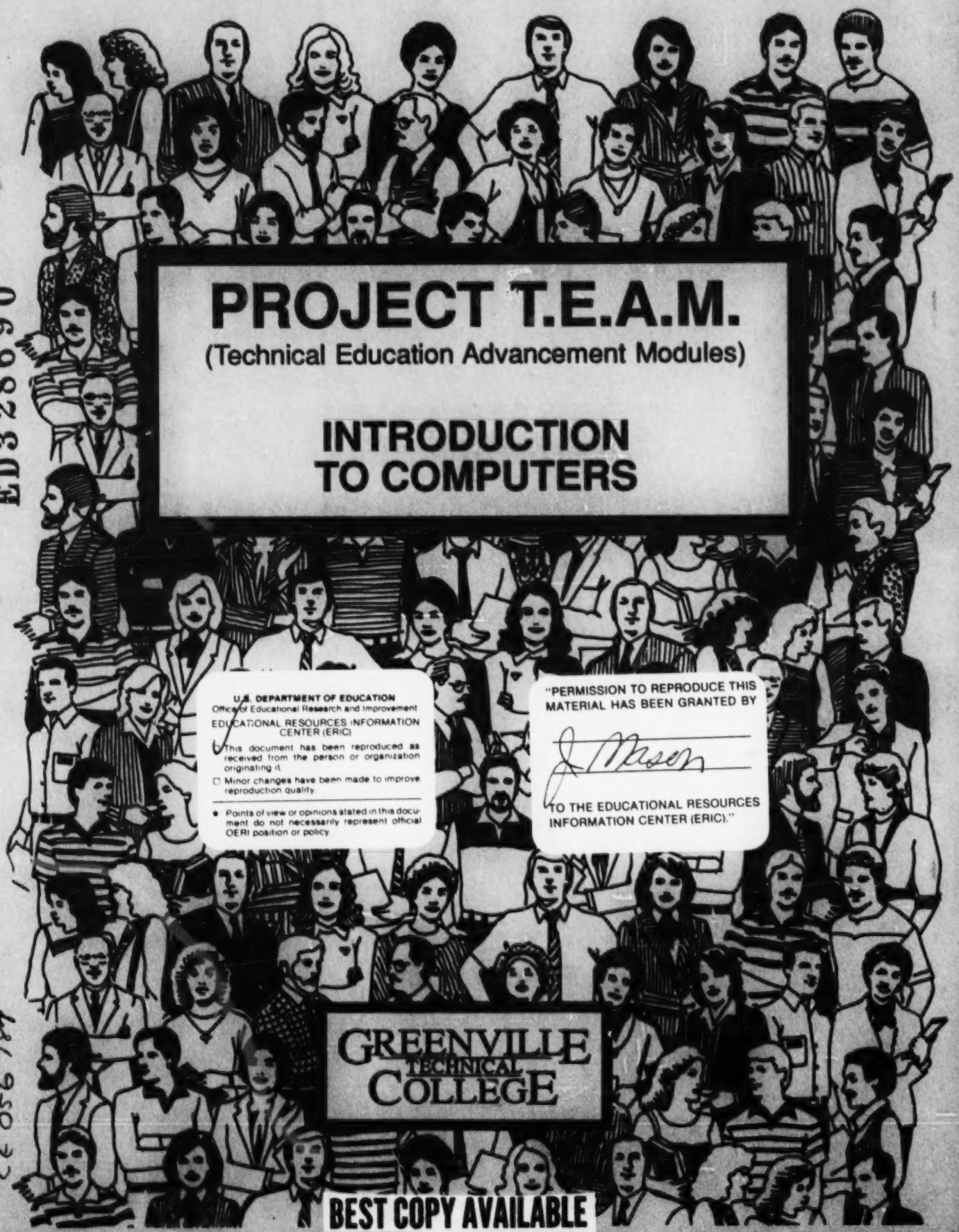
PROJECT T.E.A.M.

(Technical Education Advancement Modules)

INTRODUCTION TO COMPUTERS



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PROJECT TEAM
TECHNICAL EDUCATION ADVANCEMENT MODULES

INSTRUCTIONAL MODULE:

INTRODUCTION TO COMPUTERS

Developed by:

Brenda Ellis, Computer Support Services

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Introduction:

The purpose of this manual is to serve as an instructional guide for the TEAM Grant module Introduction to Computers.

Introduction to Computers is a three hour overview course intended to develop competencies in the following skill areas:

Orientation to Data Processing
Use of Data Entry Devices
Use of Computer Menus
Entry of Data with Accuracy and Positive Feedback

Overview of Project TEAM:

Project TEAM (Technical Education Advancement Modules) is a program targeted toward the unemployed, underemployed, and existing industrial employees who are in need of upgrading basic technical competencies. The program seeks to give adequate preparatory educational opportunities in generic technical skill areas and to create a public awareness of the need for these basic skills. Curriculum content was determined by an assessment team of local industrial employers. Their evaluation resulted in the development of 15 instructional modules; some of which may be industry specific, but most of which are applicable in and necessary to a majority of industrial settings. The modules may be used collectively or as a separate curriculum for a specific course or courses. The material contained in each manual will serve as a student outline and as an instructor guide which may be used selectively or in its entirety.

Project Team

TRAINING SESSION PLAN

1. Course Title	2. Session Number
Introduction to Computers	1 session at 3 hours

ESSENTIAL INFORMATION

3. Session Objectives

To orient the student to data processing through an introduction to light computer usage, providing hands-on activities that require accurate data entry and offer positive feedback.

4. Tools, Equipment, and Materials needed

computer hardware and software

5. Training Aids Needed

6. Time Allotted

3 hours (180 minutes)

SESSION OUTLINE	HANDOUTS	TIME
Introduction	--------	10 min
Computer Hardware	Text ppg. 1-3	15 min
Storage & Memory Capability	Text ppg. 3-4	30 min
Break	--------	15 min
Processing Cycles	Text ppg. 4-5	15 min
Operating System	Text pg. 5	15 min
Data Entry Exercise	Text pg. 6	30 min
Break	--------	10 min
Review and Test	--------	40 min

HARDWARE

This part of the course is designed to remove the mystery surrounding the visible parts of the computer. The walk around the computer emphasizes that the computer is a piece of electrical machinery, not a magical contraption with mysterious powers.

Walk around computer - literally

Point out each opening and cord in the back of the computer and tell the purpose of each. Points of interest are the serial number plate, electrical cable, ventilation slots for the interior fan, printer cables and ports, cables connecting the monitor to the 'box' and the power supply, cassette port, expansion slots.

Sit down again and look at the monitor. The monitor uses the same technology as a TV screen and has the same limitations. Notice the monitor power switch and the knobs controlling brightness and contrast. These two knobs are intended to make using the monitor less of a strain. Notice the color symbol on the monitor.

The computers in the library classroom have 2 disk drives. One is called A and the other is B. Diskettes go into the drives. Without diskettes information could not be transferred easily from one PC to another.

It is very likely that the keyboard the students actually work on will not be the same as the ones in the classroom. New keyboards have more keys and the arrangement is different. Computers in a manufacturing environment may have a keyboard specifically designed for a particular purpose and have only a few keys.

Function Keys

There are 10 on this keyboard. They have different purposes depending on the software being run at the time. Usually the F1 key is a help key. If you're having trouble with the software and press that key, you may see some kind of a help screen. The only way to know exactly what the function keys do in your application is to look at the manual or have an experienced person explain.

Tab Key

This key functions just like the tab key on a typewriter. Pressing it will cause the cursor to jump to the next tab stop. On some data entry programs it can be used to advance from one file to the next.

Control and Alternate Keys

One of these keys is pressed in conjunction with another key to invoke a command. For instance, hold the control key down and tap S to stop the information on the screen from scrolling up the screen.

Shift

These are found on either side of the keyboard. They work just like the shift keys on a typeriter.

Letters and Characters

These keys are arranged just like a typewriter keyboard.

Enter/Return

This key has several purposes. In a word processor it is used just like the typewriter carriage return. In data entry or in the operating system it is used as a signal to the machine that you are finished entering a command and it is time for the machine to act on that command.

Backspace

This key moves the cursor one position to the left and erases at the same time.

ESC

This is often used as a panic button. To interrupt processing, press this key and the machine will stop. Not all software will support this.

Caps Lock

This is a toggle switch. When it's on, all letters typed will appear as upper case on the screen.

Num Lock

This is also a toggle. When it's on, the number keys on the numerical keypad are active. When it's off, the directional keys on the numeric keypad are active.

Prt Sc

Hold the shift key and press this key to get a quick and dirty print out of what appears on the screen. Only use this key if a printer is attached to your machine.

Del

Pressing this key will delete one character to the right of the cursor position.

Ins

This key toggles between overwrite and insert modes when using a wordprocessor.

Directional Keys

When the numeric lock is off, use the keys to move the cursor in a wordprocessor. The arrow keys move one character or line at a time. PgUp and PgDn move 24 lines at a time.

STORAGE

Primary Storage or Memory - The 'mind' of the computer

Without memory the computer cannot function. Without memory, the machine could be aware of only what was happening at any one fraction of a second. The machine would not be able to know the last character typed on the keyboard, let alone be able to keep track of a document or spreadsheet. There are two kinds of memory: one is ROM and the other is RAM.

ROM stands for Read Only Memory. Read Only means that the user cannot change what is in this memory. The machine can only look at what is there and follow the instructions. This is memory that is placed on silicon chips and installed at the factory. The only way that it can be changed is to take that ROM chip out and install another in its place. One of the main components of ROM is the start-up routines used by the computer as it turns itself on.

RAM is Random Access Memory. Random Access means that the user may use any or all of this memory and may change it at will. This is the memory that people are usually referring to when the subject comes up. Memory is measured in the number of characters that it can accomodate. Byte is the computer term for a character. Memory size is usually defined in thousands of characters or bytes. The computer prefix for one thousand is kilo. Therefore one thousand characters means one kilobyte in 'computer-talk.' A kilobyte is often referred to as 1 K. If someone says a computer has 640 K of RAM, it means that the computer can hold 640,000 characters in it's mind at one time.

A computer's memory is dependent on a steady, electrical current. When the current goes off, anything that is in RAM will be lost. In order to retain the contents of memory for later use, a special command must be issued to write the contents onto a disk.

Secondary Storage - Disks, diskettes

Storage on PC's is found on disks. Information on a disk is safe and cannot be lost when the electricity is turned off. The only way data on a disk can be changed is if a second save command writes over the original on the disk or if the disk is physically damaged. For instance, you use your word processor to write a letter. At this point you are in RAM. When you finish, you decide to save the file. The save command writes your letter onto the disk. Now the letter can't be lost when the electrical plug is pulled from its socket. That's storage. Then you decide to re-edit the letter and you call it up onto your screen. What you see is not your letter, but a copy of it - the original is safely on the disk. You start editing. Now you're working in RAM. The only way those changes will be kept is by you issuing a save command and re-writing

the disk. If you quit without saving, or if the electricity goes off, your changes will be lost. The file on the disk will be exactly as it was before you started editing.

WRITING TO DISK OR TAPE

When the computer writes a file to a disk, it is not writing letters, it is writing in a format that only it can read. It is laying down a series of positive and negative charges on concentric rings called tracks. The disk is coated with zinc oxide which enables it to accept the charge the machine places on it. As the machine writes, the disk spins at a high rate of speed. The read/write head floats on a cushion of air just above the disk surface. The machine stores information about the contents of the disk and exact locations on the disk in a section of the disk reserved for that purpose - the directory.

Care of diskettes

In order to be sure that data is not lost, precautions must be taken when handling diskettes.

1. Hands off the actual disk surface, handle them by the edge
2. Keep the diskette in its envelope
3. Do not wrinkle, fold, or stash diskettes on the floor of the car
4. Keep them away from magnets, objects that have been magnetized like screwdrivers and paper clips, or electromagnetic devices like phones
5. Keep liquid and food away
6. Avoid smoking around them - a cigarette smoke particle is like a mountain on the diskette surface
7. Do not let them get very hot or cold

PROCESSING CYCLE

There are three main steps involved in computer use. The first involves putting information in - **input.**

Input devices:

Keyboard
Scanner
Mouse
Light Pen
Touch screen
Disk or Tape
Modem

The second step is some kind of processing. This can be calculations, sorting, or just simple storage. The third step involves getting the processed information out of the computer for your use. This is **output.**

Output devices:

Printer
Screen
Modem
Disk

SOFTWARE AND HARDWARE

Hardware is any part of the computer that you can touch - keyboard, screws, printer, cords, anything tangible.

Software is the programs and routines that run on the computer. A disk is hardware, but the program it contains is software.

Every computer, no matter what size, has a special kind of software called the operating system. The operating system keeps track of the computer operations, I/O, storage, Interrupts, storage locations, it runs the whole show. It's like an umbrella under which all other routines run. For example, when you use a word processor, DOS temporarily gives control to the word processor. When it is time to write to the disk, DOS takes over, writes, and then gives control back to the word processor. When you exit the word processor, DOS takes control again. There are operating system commands available so the user can direct some of these activities. Each type of computer has different commands for the system. The operating system for the IBM-PC's and their compatible is called Disk Operating System or DOS for short.

SYSTEM START-UP

The machine turns itself on a little at a time and checks out its components before any information is sent to the screen. When the boot is finished, the DOS is active. The cursor is the blinking square or line that tells where the next character typed will appear. Messages from DOS appear on the screen. The autoexec file contains the Date and Time commands. The date is used to mark files with the date and time of the last access - the last time a change was made to that file. It would be possible to accept the date and time as this system gives them, but then the date and time stamp on the files would be meaningless. While a casual or limited user may not care, a member of the MIS department may need to know which files are most current. When the date or time is incorrectly answered, the system will send an error message. DOS gives an example of how date and time are to be entered. Read the screen looking for clues as to how to respond to the system messages. Use the DIR command to see the file listing and point out the date and time stamp on the files. While the screen is full of the directory, use SHIFT-PrtSc to print the screen to the printers.

HANDS-ON DATE ENTRY PRACTICE

The software for data entry practice is First Choice. (Lead the students through the first steps to invoke First Choice.) The Opening screen of First Choice is a menu. Many softwares use the menu to provide a list of choices.

While simplifying use of the software, the menu also limits what the software can do. Choose the menu option to create a new file.

Teacher's Note

The file will consist of three nursery rhymes. Have the students type them in from memory. Encourage them to help each other remember the rhymes since the interaction tends to loosen up the class. Case and poetic stanza structure are not as important as the actual keyboarding. The students will finish at different times. Those who finish early can use the spellchecker or other editing features as they wait for the rest of the class to finish. Show the features on an individual basis so as not to confuse the whole class. After all the data entry is done, back the students out of First Choic into DOS.

Since the file save command was not issued, the rhymes will not be writeen and will be lost. Remember that you must not shut the system down unless you are at the DOS prompt. Doing so could cause file damages since breaking out bypasses normal file closing routines.

REVIEW AND TEST